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Fundamental Education and the Defense of Democracy*

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OUR public, private, and church related schools in the United States provide the greatest educational opportunities ever available in any nation at any time in history. Our total educational system, from kindergarten through the university, has enrolled thirty-eight million pupils this year, and the increases in enrollments which are taking place indicate that we may expect forty-six million in our various schools by 1960. This would mean that about one of each five persons living in the United States would be enrolled in some kind of formal program of education.

Never in all history have people placed so much faith in organized programs of education. Among the public school systems of the world ours is unique in size, in cost, in number of years of free schooling, in the scope of the curriculum, in provisions for academic freedom, and in the degree of popular control. With all of its many faults the free compulsory schools of the United States are probably the best schools in the world when appraised in terms of their effectiveness in developing freedom-loving people and citizens devoted to the cause of democracy.

With increasing effectiveness our schools have fought the forces of ignorance and have almost wiped out illiteracy. From our educational institutions have come the architects to design our cities, the engineers to build our supersonic planes, physicians to relieve the suffering of mankind, skilled farmers who make two blades grow where but one grew before, and scientists to split the atom and release the awe-inspiring power of the hydrogen bomb. But more important than these achievements has been the achievement of freedom—*and this freedom has come largely from our public schools.* It has come because our schools have provided youth with the fundamental education which fosters optimum development of the

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individual as a self-directing, socially sensitive participant in group living.

And just what are the fundamental things that our educational systems teach? It is not always easy to pick out those things that are basic or fundamental in a culture. Other peoples in other parts of the world are not able to distinguish easily the essential elements in a program of public education. Some people would regard fundamental education as simply that which results in literacy. In this country we frequently refer to education of this kind as mastery of the three R's. Others regard our primary school system as the system which provides for fundamental education, that is, the basic program of reading, writing, speaking, number facts, and a few basic rules of health and behavior.

In Latin America one sometimes hears the phrase "escuela de los tres años," meaning for them fundamental education to be mastered in three years, probably not beginning until the child reaches his ninth birthday. Such a program would include simple literacy, basic health knowledge, and rudimentary vocational skills. The UNESCO program in the under-developed areas of the world has given major attention to basic literacy, health, and vocations.

Pearl Buck, the American author who probably knows China best, has quoted James Yen as saying: "People are the foundation of the nation. If the foundation is firm, then the nation will enjoy tranquillity. I apply that to the whole world. If the foundation is firm, then the world will enjoy tranquillity. But three-fourths of the world's people today are underhoused, underclothed, underfed, and illiterate. Now as long as this continues to be true, we have a very poor foundation upon which to build." Fundamental education then is work with people. A type of education that will guarantee their improvement *economically, socially,* and *intellectually.*

Julian Huxley, when Director General of UNESCO, referred to Abraham Lincoln's famous metaphor of the house divided against itself in which Lincoln said that a nation half slave and half free could not stand. Huxley said:

> The same may well be true of the world. For half the people of the world are denied the elementary freedom which consists in the ability to read and write. They lack something of the basic unity and basic justice which the United Nations are pledged together to further. Fundamental education is only part of the wider and fuller human understanding to which UNESCO is dedicated, but it is an essential part.

We still have in some areas of the United States, particularly in some of our southern states, a problem of providing fundamental education for literacy similar to that in under-developed areas. Nevertheless, among our younger group illiteracy scarcely exists. We can look to the future with confidence that the problem of illiteracy will soon be solved. But fundamental education for the United States is much more than achievement of literacy. I should like to discuss briefly six additional objectives of American Education that seem to me to be just as fundamental as literacy.

VOCATIONAL EFFICIENCY

First, I would mention education for vocational effectiveness. Only a few weeks ago the Chamber of Commerce of the United States published a booklet entitled *Education: An Investment in People*. These business men have analyzed the data of the Bureau of the Census in the United States Government and have shown some amazing correlations between indexes of economic well-being and education. They show that there is a direct relationship between educational level and earning power and, therefore, buying power in our total American economy. They showed that eighty-two per cent of all the annual incomes of ten thousand dollars or more came from the group of people with college or high school education. On the other hand, they showed that seventy-seven per cent of the incomes below five hundred dollars a year came from the group that had an eighth grade education or less.

Other interesting figures in the Chamber of Commerce booklet show that the more successful farmers have had more years in school. The cities with the highest per-person retail sales were the cities with the highest educational level. Magazine circulation among the forty-eight states varied directly in proportion to educational levels, and the persons with most education were the most active politically. Interesting charts in this publication show that the proportion of men rejected for military service because of deficiencies in education, was highest in the states where high school dropouts were highest. The southern region, for example, with the lowest educational level had the highest rate of military rejections.

The problem of improving living standards through education is pointed up furthermore by international comparison. Data from UNESCO show that living standards and literacy go hand and hand, with the countries providing the best educational system enjoying the highest living standards.

Democratic Citizenship

A second aspect of fundamental education for the defense of democracy is the inculcation of democratic loyalties. Some people feel that we cannot teach democracy, that any atempt to do so becomes mere indoctrination. I do not agree with them because I believe that we *can* and *ought* to teach democracy. We can develop such a clear understanding of principles and values of the democratic way of life that other systems of living will suffer by comparison. Our educational program must prepare the next generation to defend the commonwealth against enemies that may come from any direction. This means a re-interpretation of democracy and what it means in terms of twentieth century living. Much of this will not come from typical textbook lessons, but will be an outgrowth of the total school program. Students develop their values through the atmosphere of the classrooms in which they are taught, through contests on the playing fields, through browsing in the libraries, and through the informal life of the dormitories in the institutions they attend. Actually the formal part of college programs may have little to do with the development of democratic values unless there is a conscious attempt to build them into the program.

The rising generation must understand that our educational institutions are instruments of social change. They do not determine social change alone, but they work in company with other agencies, the peculiar genius of the public school being that it is the champion for children and youth. Our educational institutions must not be merely reflections of the society in which they exist, taking their cues from pressure groups, but they must be dynamic institutions which bring about improvements which create better living conditions for all the people by serving *all the children* of *all the people*.

There are people who honestly believe that a thorough teaching of the Declaration of Independence, the Constitution, and the history of the United States is all that is necessary for development of youth for effective citizenship in a democracy. As essential as these activities are, they do not necessarily produce individuals capable of assuming the privileges and responsibilities of democratic citizenship. The only way individuals may learn to live democratically is by experiencing democracy. If we are to teach democratic ideals, then these ideals must form the basis of classroom procedure. Only when the school becomes in effect an emerging replica of a democratic society in action will it fulfill its obligation to the people it serves.

EFFECTIVE GROUP PARTICIPATION

A third objective that education must develop, if we are to maintain and improve our democratic form of government, is the development of competencies needed for effective participation in democratic group undertakings. To guard our freedoms, *all* of our political, economic, and social activities must be *cooperative* ventures which demand skill on the part of the individual in serving the ends of the group.

Persons accustomed to individual thinking and action must learn to surrender at times some of their personal goals for the good of the group. Behind the iron curtain individuals are commanded to do this. In the free world this giving up of individual privileges must be on a voluntary basis. The citizens must adopt a social point of view, and remember that the success of a cooperative enterprise is dependent upon each member doing his part.

The schools must teach children and youth to work together. They need to learn how to do group thinking. Beginning in the first year of school and progressing to continually higher levels, groups must improve in their ability to handle themselves, to work with purpose and direction, to select leadership wisely, and to organize for efficient functioning. Practice in being a good group member can become a good habit. In democracy it should be a major goal. Americans by nature are joiners and it is well that this is so, because much of our democracy functions on this basis. Political parties, churches, civic clubs, and professional groups are all on a voluntary basis. Through such organizations much of the work of a democratic order can be accomplished.

TOLERANT ATTITUDE

The fundamental education that is needed to defend democracy certainly must include the development of tolerance. There is no place in a democracy for prejudice and stereotyped attitudes regarding minority groups. All of our educational institutions, particularly the public schools, must have a well-planned program to combat prejudice, unsatisfactory habitual attitudes, and intolerance. In the United States we have about one-half million Indians, a half million Oriental, Filipino, and Mexican people. There are sixty million Anglo-Saxon, ten million Irish, fifteen million Teutonic, nine million Slavic, five million Italian, four million Scandinavian, a couple of million French, about fifteen million Negro, and perhaps a million each of Greek, Lithuanian, and Finn.

We have between forty and fifty million who are Protestants and

between twenty and thirty million Roman Catholics. In addition we have several million Jews, about a million Mormons, and over a hundred thousand Quakers. In such a diverse culture there is no place for prejudice and habitual attitudes which will weaken national unity and give rise to dissatisfied minority groups which can very easily become fertile fields for the seeds of discontent that can be sown by subversive elements. If education is to help establish values by which an individual lives, then it must develop a spirit of tolerance which exhibits a respect for the dignity and worth of human personality regardless of economic, racial, or religious classification.

Tolerance can be taught. It can be gathered through rich experiences. What Protestant, for example, would not be more tolerant of the Catholics if he had firsthand experience with Fulton Sheen or knew the writings of John Henry Newman? On the other hand, what Catholic would not be more tolerant with reference to Protestants if he knew many Protestants like Harry Emerson Fosdick or Norman Vincent Peale? The Negro's understanding of the white man would be greatly improved if he learned more of such great humanitarians as Franklin D. Roosevelt or North Carolina's Frank Porter Graham. By the same token no white man can ever hold the same prejudices that he may have once held if he is thoroughly familiar with the contributions of Booker T. Washington, George Washington Carver, and Ralph Bunche.

Recognition of Propaganda

In a world where we are constantly bombarded with radio, television, newspapers, magazines, books, pamphlets, and other means of mass communication, it is essential that we know how to recognize, analyze, and overcome undesirable propaganda. Certainly, a fundamental kind of education in a democratic society would teach children and youth to discern the truth among the great mass of misleading facts and figures and untruths. If we are to have free speech, free press, and free assembly, we must have people who can recognize propaganda and deal with it in such a manner that its evil effects are avoided, and this must be done without the loss of any of our hard-won civil liberties.

Appreciation of Freedom

Lastly, I think it is fundamental that we teach our rising generations to appreciate freedom.

For the great majority of our people the term "democracy" symbolizes the ideal which they accept personally and for the nation. For many this term is a verbalism in contemporary life. As a nation we pay lip service to democracy without actually practicing what we preach. Instruction to overcome this weakness in our national life must include teaching which will redefine democracy in terms of 1954 and the future. The political, economic, and social aspects of democracy must be understood. Every citizen must see clearly the unique relationship which exists between education and democracy in which the one promotes the other.

If the American dream is to become a reality, freedom in every realm must be encouraged, especially in the realm of the intellect. The scientists must be free to pursue the truth, the scholar to do his research and the teacher to propound. Youth must grow up in a freedom-loving atmosphere where they will be able to recognize the demagogue for what he is, identify a witch-hunt no matter what name it may be hiding behind, unfrock the charlatan, and discount the chauvinist.

Our form of government emerged from a belief that the common man can govern himself. It it this belief which keeps alive free government in the world today. You cannot legislate it, you can only provide the kind of education that will take youth and teach them to appreciate freedom and to know how to protect it. The fundamental education that the American schools must provide, therefore, is that which grows out of an institution which is in effect a laboratory for democracy, where children and youth experience freedom, enjoy civil liberties, learn to appreciate the dignity and worth of all human beings, and participate in their own government at school.

The freedom, peace, and security that we value so highly must emerge from our way of living and that way of living is in large measure a reflection of the kind of educational opportunities available to the people of the nation. The optimum self-development, the desirable human relationships, the vocational efficiency, and the civic responsibility that are the goals of American education are at the same time the essentials of democracy and our surest protection against our enemies. Our democratic form of government and our free compulsory school system are reciprocally related. Together they must go forward, winning anew the liberty and freedom which emerge from the struggles necessary to bring about each new social advance.

Problems of Adapting Intelligence Scales from One Culture to Another

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THIS ARTICLE deals with the problems encountered by psychologists of the Division of Research and Statistics of the Department of Education of Puerto Rico[1] in the translating and adapting for use in the schools of Puerto Rico of the following intelligence tests: Wechsler Intelligence Scale for Children, Stanford-Binet Scale, Revised, Form L, and the Goodenough Intelligence Test. These adaptations were necessary because of the lack of measuring instruments for Puerto Rican children in particular and for Spanish-speaking children in general.

THE WECHSLER SCALE

The first instrument with which we worked was the Wechsler Intelligence Scale for Children. This scale consists of two parts: one verbal and one performance. The verbal scale comprises five subtests: general information, general comprehension, arithmetic, similarities, and vocabulary. The performance scale consists of the following subtests: digit span, picture completion, picture arrangement, block design, object assembly, coding, and mazes.

Three experiments were conducted in the process of adaptation. The first included three children in each grade: one average, one above average, and one below average. The range of IQ's found was from 70 to 114 with a median of 84.5 in the verbal scale and a range of 47 to 120 in the performance scale with a median of 85.5. The total scale ranged from 59 to 106 with a median of 80.75.

Correlated with the Goodenough test we obtained a correlation of $.672 \pm .09$. Correlated with teachers' judgment a contingency correlation of .32 was obtained.

As a result of this first experiment, the following changes were effected in the scale: General information, question number 16, *Who wrote Romeo and Juliet?* to *Who wrote Don Quixote?* Question number 19, *How tall is the average American man?* to *How tall is the average Puerto Rican man?* It happens that whereas the average height of the American man is 67 inches, the Puerto Rican is

[1] The following have contributed to this paper: Psychologists Ornela Soto, María M. Maíz de Meléndez, Miguelina Lopátegui, Assistant director Clyde L. Fischer.

65. Question number 24, *How far is it from New York to Chicago?* became *How far is it from New York to Puerto Rico?*

In the arithmetic test we changed question number 16, which reads: *Smith and Brown start a card game . . .* to *John and Peter start a marbles game . . .*

In the Analogies test we changed question number 5, *In what way are a peach and a plum alike,* to *. . . an orange and a banana.*

In the vocabulary test we discovered that certain words such as *spade, mantis, spangle,* and *belfry* were either too easy when translated into Spanish, or else had different meanings. We had to study the frequency lists in both English and Spanish in order to select a Spanish word on the same difficulty level. One problem here was the lack of Spanish frequency counts at the time.[2]

In the performance scale no changes were effected in this first experiment.

In the second experiment we selected middle-class socio-economic status children from three schools. The number of students was 69, three from each grade: one average, one above average, and one below average. This time all questions in each subtest in the verbal scale were given, because we wanted to find the difficulty level of each question. In order to avoid boredom one verbal subtest was followed by one performance subtest.

As a result of this second experiment the following changes were effected:

General information. Questions were arranged in a new order of difficulty. It is interesting to discover which questions became either easier or more difficult when translated into Spanish. For example, question number 2, *What do you call this finger?* (Thumb) became question number 11. The reason is that *Pulgar* which is the Spanish word for thumb is much more difficult in Spanish than in English. Of course, the common name of thumb is *dedo grande* which simply means big finger.

On the other hand question number 7 now became question number 4; that is, it is easier for Spanish-speaking children to know how many pennies make a nickel. All other questions changed positions, but not so much as did numbers 2 and 7. The only questions keeping their places were numbers 1, 12, and 30. Question one is *How many ears have you?*, question 12 is *What is the color of rubies,* and question 30 is *What is a lien?*

[2] At a later date the University of Puerto Rico published a ten million word count of the Spanish language: Consejo Superior de Ensefianza, *Recuento de Vocabulario Español.* Vol. I, Editado por OEA y UNESCO. Rio Piedras: Universidad de Puerto Rico 1952.

Comprehension. Questions 1 and 2 remained in their original position. Question number 6 became number 3 in our adaptation. This question refers to brick houses, which are non existent in Puerto Rico. Rather, we utilized concrete houses, which are common here. Question number 8 contained the word *shipwreck* in English. When translated into Spanish, *naufragio* became so difficult that children could not answer the question. We had to describe the word by substituting the phrase *when a ship sinks* to enable the children to understand the problem involved.

Question 11 asks *Why should most government positions be filled through examinations?* Pupils related examinations to medical examinations and it was not until we added *civil service examinations* that they understood the idea.

Arithmetic. Question 12 in the original had to do with buying oranges. This question was easier for our children, who are accustomed to buying oranges, and therefore, it became question number 10 in our adaptation.

Similarities. Only changes in position were effected in this subtest. *Liberty and Justice* became the most difficult question rather than *49 and 121* as in the original.

Vocabulary. The lowest rho correlation between ranks in the original and ranks in our adaptation was obtained for this subtest. Some words like spade and spangle became easier when translated into Spanish. Even though the word *fur* had the same count in Eaton's list (2a) as its Spanish equivalent *piel* (2a), we found the Spanish word more difficult for our children. We must keep in mind that we have summer time all throughout the year. The same thing happened with the word *diamond* although in this case the English count was 2a versus a Spanish count of 4a in Eaton's list.

We could not find a word in Spanish that would translate the word *mantis* and we had to substitute for it *beetle,* which of course resulted in an easier word in Spanish than *mantis* in English. We could not translate adequately *belfry* which means *campanario* in Spanish, a word too easy in a predominantly Catholic country. We chose *espadaña* which became a more difficult word than *belfry.*

Digit Span—No alterations were made in this subtest.

Picture completion. No great changes were effected in this subtest, except changes in rank order of difficulty. Some noticeable changes in this respect were as follows: The fish with the dorsal fin missing became easier in Puerto Rico where there is abundant fish-

ing all year around. The rooster with the spur missing also became easier. I should explain that cock fighting is legal in our country. On the other hand, the card with the center spade missing became more difficult. Card games are not so popular in Puerto Rico.

Picture arrangement. No alterations were made in this subtest, but the percentage passing dropped considerably from number 3 to number 4 and from number 4 to number 5. Question number 3 is titled *farmer,* question number 4 *picnic,* and question number 5 *sleeper.* Both 4 and 5 are rare events in our children's lives.

Block Design. No changes were effected here. However, the number passing was lower than in the picture arrangement test.

Object assembly. In this subtest the automobile was found to be easier for our children than the face.

Coding and mazes. No changes made.

All questions were tested for validity in accordance with Kelley's upper and lower groups. Only 12 out of 30 questions in the general information test were found with satisfactory phi coefficients. In comprehension 4 out of 14, in arithmetic 4 out of 16 and in analogies 4 out of 16 had satisfactory phi coefficients. In vocabulary, however, 37 out of 40 were found with satisfactory phi coefficients. The only subtest where all questions were found valid was the object composition test. The block design test had 8 out of 10 questions valid.

A third experiment was conducted with 40 subjects, 20 boys and 20 girls, selected in the same manner from the elementary grades in three schools. In analyzing the test questions, all subjects of the three experiments were combined, thus making a total of 128 subjects. The distribution of IQ's found ranged from 46 to 138, with a median of 87.94. The mean was 88.01 and the standard deviation 21.60.

The conclusion reached indicated that the average Puerto Rican child scores 12 IQ points less than the average American child; in other words, IQ's of 77 to 99 as given by the Wechsler Intelligence Scale for Children Adaptation for Puerto Rico seem to us normal.

A second group of children who were tested independently of the one used in the three experiments described above confirmed the average IQ found. This confirmation showed us that the adaptation was consistent in its results. Why our children scored lower than the American children could be explained in terms of cultural differences.

THE BINET SCALE

Three translations of this scale had been made in Puerto Rico and one in Spain before we started our experiments. None of these had developed norms for the scale nor were they adaptations based on experimental evidence. They were simply translations.

The first problem we met in our attempt to translate and adapt the scale occurred with Test XI, No. 5, Problem Situation, which referred to the *skunk,* an unknown animal in Puerto Rico. Naturally, we had to replace the skunk problem with something else. Four problems were selected and tested; one had to do with a wasp, one with a crab, and two were taken from Form M of the same scale, Test VIII, No. 5 and Test XIV, No. 1.

A second problem had to do with the codes in Average Adult, No. 2. This was not an easy problem, inasmuch as the Spanish alphabet has two double letters following the single letter, which each constitute a separate, independent and different letter. This is the case of the double l (ll) and the double r (rr).

Three experiments were conducted with the Binet scale, following the same procedure for the selection of students that was described for the Wechsler adaptation. In the first, 34 children were used; in the second 138, and in the third over 700.

The first experiment yielded IQ's ranging from 50 to 126 with a median of 79.33. As a result of this first experiment the third of the four *Problem Situation* tests was selected to replace the skunk problem. The selected problem corresponds to Form M, VIII, 1. As to the codes, the second one was selected.

Some other changes were effected as result of this first experiment. In VII, 2, Similarities: Two Things, the order was changed. In XI, 3, Abstract Words I, *conexión* which is the Spanish word for *connection* was changed to *conectar,* which is the verb form, because children understood the word to be *colección,* which means collection.

In XII, 5, Abstract Words II, *courage* (*valor* in Spanish) had to be changed to *valentía* (gallantry) because *valor* also means *value* and children responded to this easier meaning.

In Average Adult, No. 3, Differences Between Abstract Words, *Poverty* and *misery* (Spanish *pobreza* y *miseria*) had to be changed to *pobreza* y *martirio* (poverty and martyrdom) because the Spanish word *miseria* means extreme poverty.

After these changes were effected, the second experiment with 138 children was carried out. The IQ's of this group ranged from

62 to 145 with an average of 97.33 and a median of 95.97. The standard deviation was 15.75. A large number of questions were found to be in an incorrect order of difficulty and had to be rearranged. Tests VII and XII were found to be too difficult for our children. Many other questions did not seem clear to our children, thus becoming ambiguous and therefore difficult.

The following changes were effected in order to make the ambiguous questions clearer to our children. In V, 5, Memory for Sentences II, the original translation had too many words beginning with the K sound, so that it became a tongue twister rather than a regular sentence with a clear meaning to test memory. So the words were changed and the sentence, while retaining the same general idea, read like this: *María quiere hacer un castillo grande en la arena* (Mary wants to make a big castle in the sand). The original in English is as follows: *Jane wants to build a big castle in her playhouse.*

With reference to VII, la, Man with an umbrella, our children could not see the absurdity intended to be seen; that is, that the man in the picture has the umbrella in the wrong direction and is getting wet. Our children saw an absurdity all right, but not this one. Instead they would say, "Look, a man with an umbrella," and they would laugh. To them is was absurd for a man to carry an umbrella. That is something you do not see there; men do not use umbrellas. As a matter of fact, it is very rare to see a man wearing a hat. In revising this, we changed the picture to a woman with an umbrella.

In VII, 2b, Similarities: Two Things, we had to change the pair *ship* and *automobile* for *airplane* and *automobile* for many of our children have never seen a ship but have seen lots of planes and automobiles.

In VII, 5c, Opposite Analogies I, *A bird flies, a fish. . . .*, our children would complete the sentence by saying a fish does not fly. We revised it by adding: *In the air a bird flies; in the water a fish. . . .*

In VIII, 2a, Memory for Stories, The Wet Fall, we had to change the title, *La Caíde en el Charco,* for *La Caída Mojada.* However, this second title didn't work either, and as a result of our third experiment, we had to ask the children themselves to select a title for the story. The title having the greatest frequency was finally selected. It reads as follows: *El Caballito de Juan* (John's Little Horse).

XII, 2c, Verbal Absurdities, refers to icebergs in the Gulf Stream; we had to change this to ice blocks that had been entirely melted by the heat. Almost all subjects missed the absurdity as originally presented. Puerto Rico is a land of perpetual summer where cold, icebergs, and snow represent foreign concepts.

In Average Adult, 3b, where we had changed *misery* for *martyrdom* we found that the question was then too easy. Four new pairs were selected for trial: *admiration* and *envy, debt* and *gratitude, ambition* and *envy,* and *humility* and *poverty.* In our third experiment the first pair proved to be the best question.

In Superior Adult III, 3b, Opposite Analogies II, the question *The pine tree is evergreen; the poplar is. . . .* had to be changed, because in our land where there is no winter, trees are green all year around. We had substituted for the poplar the *flamboyant,* a well-known tree in our country, but even so no one could answer the question. We changed the analogy thus: *One side of a medal is called the obverse, the other the. . . .*

In addition to the changes mentioned previously, other minor modifications and changes in the order of presentation were effected.

One departure from the recommended method of presentation of the memory for digits test was made. All digits were organized in a series for trial in our third experiment. Fradsen[3] had found no difference in presentation, and we confirmed his conclusion.

In our third experiment 717 subjects were used. They covered children from 5 to 17 years of age and from kindergarten to twelfth grades. Only the subtests to be tried were given to the appropriate groups. Nearly all of the revised questions gave satisfactory results, and in many instances in which we had changed the positions of questions, we found that they could be returned to their original positions.

In conclusion, we should say that a total of 889 subjects were used in the three experiments with the Stanford-Binet Scale. After all changes had been effected the scale was tried with 104 new subjects, and norms were established for Puerto Rico. These children were selected from different cities and towns. The IQ's ranged from 51 to 134 with a mean of 95.65 and a median of 95.83. The standard deviation was 18.16, and the probable error 12.24.

The probable error was used in determining seven categories which we classified as follows: The central category (one PE above and one below the mean) was denoted *average.* One PE above

[3] Arden N. Fradsen *et al.* "Serial vs. Consecutive Order of Administration of the Revised Stanford Binet Intelligence Scales." *Journal of Consulting Psychology,* XIV, 4 (August 1950), pp. 316-320.

and one below this were respectively denominated *high average* and *low average*. One PE above the high average classification was denominated *superior* and one below low average, *inferior*. The category above superior was called *very superior* and the one below inferior *very inferior*. In this way we avoided the classical nomenclature of genius, moron, borderline, etc. with their attendant emotional charge. In this we followed Wechsler's point of view.

THE GOODENOUGH TEST

The third instrument for measuring intelligence which I want to discuss here is the Goodenough Intelligence Test. In the process of adaptation we went through the same process used by the author in developing the scale. We followed the directions for scoring given in the original manual. This scale has to do with the drawing of a man, and points are given for each detail that is recognizable in the drawing. After all directions had been carefully checked, norms were established. A total of 2,100 children from 4 to 16 years of age were used; however, the number was reduced to 1,767 when the under-age and over-age children were not considered. These 1,767 children were all of normal age for the grade in which they were enrolled. Norms were established for ages 6 to 10.

Comparing these norms with the norms for American children, we found that Puerto Rican children scored lower than American children.

SUMMARY

Our studies involving the translation and adaptation of three intelligence tests for use in the schools of Puerto Rico indicate that in general the Puerto Rican child will score lower than the American child. With the Wechsler Intelligence Scale for Children, the average IQ for Puerto Rican children was found to be 87.94, and with the Stanford-Binet, Revised, Form L, it was 95.65. In the case of the Goodenough test the norms for the different ages were also found to be lower with the exception of ages 5 and 6, which were selected from private schools. There is no doubt that no matter how well an intelligence scale is adapted from one culture to another, there are cultural differences, which will make the children for the second culture score lower than those from the first. The proper interpretation of these facts is to consider whatever average is obtained as equivalent to an IQ of 100.

Constructing State Educational Programs

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ABOUT two years ago the Commissioner of Education requested the Division of Research to prepare programs of elementary education and of early secondary education for New York State. It was his wish that these programs contain the best that we know; that they set goals toward which the schools of the State might work.

As we analyzed the request, we came to certain conclusions or assumptions which might be stated as follows:

1. It was not appropriate to evaluate the present local programs of elementary and early secondary education. This was a task for the local school. After the State had set up a framework or a set of goals, the local schools could review their programs in the light of these goals.

2. The Division of Research should not encroach upon the functions of any of the operating units of the Department—specifically the Divisions of Elementary and of Secondary Education. It was hoped the research would influence their policies but research should not assume the responsibility of implementing its findings or formulating policies or regulations.

3. It was undesirable, as well as impossible, for the Division of Research to prepare programs for elementary or early secondary education in sufficient detail so they could be adopted without modification by local schools. To have done so would have disregarded community differences and also would have involved an undesirable amount of centralization of authority. Furthermore, one cannot build an educational program of practices only. Practices must be selected because they contribute to some end and are in consonance with sound social, psychological, and educational theory.

4. Basic principles and concepts needed to be carefully stated and made clear by descriptions of successful practices.

5. To further clarify the task the Division of Research set for itself, two distinguishing terms were used. We were preparing state *designs* within the framework of which each local school was expected to develop its own *programs*. These designs, or state programs, must contain those basic principles or concepts which are

applicable to all schools, irrespective of differing local conditions. A local program should conform to the state program but contain more specific details of practice appropriate to the local community.

The research literature revealed very little of method which we could use. This judgment was supported in the April 1953 number of the *Review of Educational Research*. The chairman of the committee preparing this Review wrote:

> This issue of the Review marks a new departure in bringing together the research related to educational programs for young children. Formerly, each Review would deal with one portion or aspect of this program in considerable detail. This approach met one type of need and thus had considerable value. There are, however, other needs related to seeing the program as a whole and to examining some of the more comprehensive educational problems of early and middle childhood. Out of an attempt to deal with this more comprehensive problem, this issue was developed.
>
> Suffice it to say, the educational program for young children does not exist as a corporate unit, a fact which caused a great deal of difficulty in dealing with several chapters of this issue.

The problem facing us was illustrated very effectively years ago in an address given by Dr. Jessup, then President of Iowa State University. He compared the preparation of such a program with the painting of a large canvas. The artist may have a clear concept of how to represent certain ideas on a canvas but where they should be placed and how to fill in the intervening spaces must be worked out. He must think of his ideas as parts of a larger concept. His canvas cannot be completed until this larger concept is decided upon. Similarly, the research worker has access to a few studies which are specific in regard to certain parts of the program but must trust to his knowledge of educational theory, the judgment of lay and professional groups, and his own imagination to fill in the intervening spaces.

Whether or not you believe this task is a proper one for research, the fact in this case was that research was asked to do it. I am, therefore, going to submit for your consideration the procedures we followed.

Probably you should understand, first of all, the resources and organization of the research staff. On the staff of the Division we

had a psychologist, a sociologist, a statistician, and specialists in school administration, in pupil personnel and in teacher personnel. Of the last three, one had been an elementary principal, one a high school principal, and the other a high school teacher. We seemed to be particularly lacking in people who knew the elementary school field. This deficiency was corrected through some temporary appointments. This staff was divided into two teams, one working on elementary education and the other on early secondary education.

To advise us in the planning, analysis, and writing of the final report, consultants recognized nationally as authorities in these areas were engaged and advisory committees, representing the State, were appointed by the Board of Regents.

It was obvious at once that time limits would not permit an experimental determination of every part of the program. Nevertheless a well-rounded program was necessary. It was our plan, therefore, to use all the experimental material available and then to seek judgments and opinions to fill in the rest. By seeking judgments from a wide enough variety of sources, a certain amount of validity was gained. This procedure had one important virtue: whatever program resulted would represent what was practical better than a program derived more scientifically.

Now let me review briefly the sources of our data and the methods used in gathering them.

1. We reviewed carefully all the research literature which was relevant. This included studies of the social and psychological needs of children as well as studies of the curriculum, methods of teaching, scheduling, organization, etc. Then we reviewed the literature which described local programs and state programs. It was assumed that these represented the best judgments of competent committees. This literature was voluminous. After several attempts at organizing it, we finally abandoned organization until other data were obtained and a plan of organization of the final document was decided upon.

2. A second source of data was visits to outstanding schools. Thirty elementary and 30 junior high schools were selected on the basis of suggestions from the supervisory staff of the Department, recommendations of professors of teachers colleges and, in the case of schools in neighboring states, recommendations from the education departments of these states.

Teams were organized for a two-day visit to each school. Each team consisted of four people—a representative of the Division of Research, a representative of either the Division of Elementary Education or the Division of Secondary Education, a faculty member from a teachers college and an administrator of a school in the neighborhood of the school to be visited. When a team visited a school they first met with the principal and any representatives of the school he might wish to invite together with any representatives of the central office who were interested. They were told that their school had been reported as being outstanding and that we wanted to know what things they thought made it good, what things they were particularly proud of, what things the school was doing that they thought were particularly successful. The team made notes of all these items and then asked to see them in operation; to talk about them with the faculty, with students and, in most instances, with parents whom the principal called in for a conference.

3. Professional educators and state educational associations were asked to reply to several open-ended questions. The three principal questions were: (1) Describe one or more policies, procedures or practices operating in your school or observed elsewhere that you consider highly desirable for use by other elementary or early secondary schools. (2) In the schools you know best, what should be done that is not being done? (3) What factors, if any, handicap or prevent the school from doing the things you mentioned in question 2? The membership of several New York State associations were polled with these questions. The faculties of several teachers colleges discussed the questions and sent us consolidated reports. For the Council of City and Village Superintendents, we listed several points of conflict and asked how they would resolve them. The New York State Teachers Association selected two committees which prepared their own questionnaires for the use of a selected group of teachers, analyzed the results and made a report to us. The New York State ASCD turned over their entire annual meeting last spring to a discussion of state programs. We benefitted from the minutes of this meeting.

4. We received the cooperation of several lay groups, including 10 per cent of the PTA's of the State, all but one chapter of the A.A.U.W., and five local citizens' committees. Two questions were asked of these lay groups: (1) As you think of your children, or of children you know, what has the elementary school and the early secondary school done for them that has proved of particular value?

(2) What would you like the elementary school and the early secondary school to do for your children, or other children, that they are not now doing? Many of these lay groups analyzed the answers and sent us summaries.

We have roughly estimated that the number of people we have contacted either directly or indirectly was over 75,000.

Before all the data were received we directed our attention to preparing outlines of the final reports. These outlines went through several revisions. I might mention some of the factors which determined the final outline.

1. There seemed to be more agreement upon the direction elementary education was taking than early secondary education. This meant that the designs for elementary education and for early secondary education should follow different outlines.

2. Only a brief summary of the theory or concepts upon which elementary education was based needed to be presented. It seemed that the outline should emphasize the features or characteristics of a good elementary school.

3. Early secondary education seemed to be passing through a period of transition. The original reasons for the junior high school were disappearing and the great divergency of practices was evidence to us that there was little agreement on a program which would be consistent with present knowledge of pupil development. Therefore, the outline of early secondary education placed emphasis upon the basic concepts and functions. An attempt was made to show how these could be used to construct a program and to evaluate practices.

4. The audience for which the reports were to be written was the classroom teacher. The decision to address the reports to teachers influenced the language used and the method of treatment of the topics. Each topic was treated in general terms and then, in so far as possible, was illustrated with descriptions of actual practices.

5. Every effort was made to avoid making statements which might be interpreted as policies or regulations which are the prerogatives of the operating units of the Education Department or the responsibilities of local schools.

6. The two documents should be interesting and attractive. This end was sought by careful attention to format, to clarity of organization, to style and by a modest amount of illustration.

Statistical treatment of the data was extremely limited but was used where possible. In the main, after the outlines had been

agreed upon, the data from all sources were classified under the outline topics. Tentative drafts of the chapters were submitted to the consultants, the Advisory Committees and to the appropriate Divisions of the Department for criticism. Sometimes these were rewritten several times. Although there was a higher degree of agreement than had at first been expected, there were some topics, particularly in the report on early secondary education, which gave trouble. The trouble was with disagreement on certain practices; there did not seem to be disagreement on basic principles.

In closing may I make an observation. Our procedure can undoubtedly be improved upon—some may even say it is not research. All I can say is that a research division was asked to do the job. It is my belief, however, that it was a legitimate request to make of research. However, the preparation of an educational program requires new research technics and procedures. The technics we have developed in recent years seem to apply more or less to isolated parts of a program. The relationship of these findings to each other and the filling in of the spaces between have received too little attention from research workers.

Men High School Teachers

Nationwide, the number of men teachers in public high schools changed by plus 4.3 per cent from 1937-38 to 1951-52.

Nationwide, the highest percentage of men teachers in public high schools occurred in 1900 (49.4%); the next highest percentage was in 1952 (45.6%).

In 1951-52 the highest percentage of men teachers in high schools was found in Utah (64.5%), Arizona, South Dakota, Nevada, and Washington (53.8%); the lowest percentage, in South Carolina (31.3), Dist. of Columbia, Alabama, Virginia, and Mississippi (35.6).

Thirty-five states and the District of Columbia now employ a larger percentage of men in public high schools than they did in 1937-38.

Twelve states, mostly in the South, now employ a smaller percentage of men teachers in public high schools than they did in 1937-38.

Community Size and Educational Outcome

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FROM personal correspondence with Dr. Roger T. Lennon and Claude F. Bridges of the World Book Company the writers decided in 1952 to draw data from schools according to size of community to prepare state norms. Research done by the World Book Company had given some indication that size of community was probably related to educational achievement.

Data were collected in 1952 and 1953 from Tennessee schools judged to be representative of three different community sizes. Group A consisted of communities over 50,000, Group B of communities 2,500 to 25,000 and Group C of communities under 2,500.

SAMPLING PROCEDURE

Before discussing these data, more should be said about our sampling methods. Since the Tennessee State Testing and Guidance Program is an optional program, dependent upon the interest and willingness of local schools to participate, our parameter does not include all schools in Tennessee. On the basis of expenditures per pupil and our general information regarding the average educational level of the 151 school systems in Tennessee, we have reason to believe that the schools participating are fairly representative though slightly skewed toward above-average in the state.

From those schools participating, we picked at random intact classroom test-score reports from the three size strata. As a check on the representativeness of the sample from each strata we pulled a cross check sample, with t tests used to determine the comparability of the sub-samples in order to arrive at a representative sample for each of the three community sizes. The 5% level of confidence was used for the significance test.

No effort was made to use the same school for all three grade levels studied. This is something we would like to do now following Lennon's study reported three years ago.[1] Lennon found that mean pupil performance at one grade level in a given community was not a good predictor of mean level of attainment for another level in the same community.

[1] R. T. Lennon, "The Stability of Achievement Test Results from Grade to Grade," *Educational and Psychological Measurement*, 11:121-127, 1951.

Data for 1952 show that large-city scores are low in every area at the fourth grade, but by the eighth grade have surpassed the other two groups in all but the Spelling test. On the Paragraph Meaning and Word Meaning tests, large and small cities are ahead of national norms at the eighth grade level, and are only slightly behind these norms on the Language Usage and Spelling tests, even though at the fourth grade they were considerably below national norms. The rural school group, except at the fourth grade level, ran consistently behind the other groups and behind the national norms.

DATA FROM 1953

In 1952-53 the data for the fourth grade were based on Form J, and the sixth and eighth grades on Forms DM and EM of the Stanford. For the academic year 1953-54 we have collected data on Form K of the Stanford in the sixth grade. Incidentally, the schools used this year were nearly all different from those used last year. The sampling procedure used in 1953 was the same as the one used in 1952.

Table 1 shows the means and standard deviations for the three community sizes on the nine subtests in the complete Stanford Battery for the sixth grade. Table 2 gives the mean differences, t values, and level of significance for the three community comparisons. In every instance the rural schools are significantly below (at the .001 level of confidence) the small city schools. On all the subtests, except social studies, pupils in the large-city schools are significantly higher (at the .05 level of confidence) than the rural schools. In three cases, Language Usage, Social Studies, and Science, children in the small cities made significantly higher scores than large-city pupils. These are no significant differences for the remaining six subtests.

We do not have data for the eighth grade in 1953, but the data from 1952 suggest that the large-city schools overtake the small-city schools by the eighth grade. The rural schools tend to fall further behind.

In presenting these data, it is recognized that what the tests measure does not represent all of the objectives towards which a school may be working. It may not be a fair evaluation of the entire work of the school; on the other hand the authors of this paper feel that the tests do measure some skills and knowledges which are important and central in any school program.

As further cautions in interpreting these data, it must be pointed

TABLE 1. Means and Standard Deviations for Sixth Grade Pupils in Three Different Sized Communities on the Stanford Achievement Battery, Form K

Subtest	Rural (A) N=389		Small Cities (B) N=213		Large Cities (C) N=157	
	Mean	S. D.	Mean	S. D.	Mean	S. D.
Paragraph Meaning	49.20	13.87	57.07	15.91	55.03	18.12
Word Meaning	52.50	16.34	60.52	16.82	60.70	16.61
Spelling	53.00	14.86	60.15	15.18	60.03	15.36
Language Usage	48.70	20.12	61.58	20.89	53.33	24.47
Arith. Reasoning	50.20	11.75	56.78	13.71	57.05	13.52
Arith. Computation	47.00	9.89	54.84	10.53	53.49	10.09
Social Studies	53.96	11.31	60.78	14.66	55.01	14.83
Science	51.84	18.21	67.00	19.38	58.53	18.68
Study Skills	46.85	19.92	57.35	17.69	54.94	14.62

TABLE 2. Mean Differences, t Values, and Significance Level for Sixth Grade Pupils in Three Different Sized Communities on the Stanford Achievement Battery, Form K

Subtest	A and B			A and C			B and C		
	Mean Diff.	t	Signif. Level	Mean Diff.	t	Signif. Level	Mean Diff.	t	Signif. Level
P.M.	7.87	6.06	.001	5.83	3.07	.01	−2.04	1.12	....
W.M.	8.02	5.64	.001	8.20	5.24	.001	.18	.10	....
Sp.	7.15	5.56	.001	7.03	4.88	.001	− .12	.74	....
L.U.	12.88	7.32	.001	4.63	2.10	.05	−8.25	3.40	.001
A.R.	6.58	5.90	.001	6.85	5.55	.001	.27	.18	....
A.C.	7.84	8.90	.001	6.49	6.81	.001	−1.35	.67	....
Soc. S.	6.82	5.89	.001	1.05	.61	....	−5.77	3.71	.001
Sc.	15.16	9.34	.001	6.69	3.81	.001	−8.47	4.24	.001
St. S.	10.50	6.65	.001	8.09	5.19	.001	−2.41	1.43	....

out that all of these tests were administered by teachers in the schools and the initial tabulations reported by them. Variations in promotional practices, testing conditions, etc., may be contaminating influences.

SUMMARY AND CONCLUSIONS

The findings reported here would seem to confirm the suggestions of Lennon and Bridges that more representative norms may be developed when proportionate numbers are collected from different sized communities.

The data do not prove any causal relation between educational outcome and community size, but it is possible that community size may contain many of the factors that contribute to these differences.

For example, studies by Avent[2,3], Carmichael[4], and Coleman[5,6], have shown a relationship between the size of school (number of teachers) and educational achievement as measured on the Stanford Battery; but it should be noted that the larger schools are generally in the larger communities.

Carmichael also studied the relation of amount of training the teacher had and teacher turnover to educational achievement. He found both of these factors related to size of school as well as to level of achievement.

Using census data, Thorndike[7] found some correlation between the following community factors: professional workers per 1000 (.26), per cent of homes needing repair (—.18), per cent of females employed (—.16), and male domestic servants per 1000 (.12) with achievement on the Metropolitan Battery. Thorndike has suggested that perhaps higher correlations might be obtained if variables such as school expenditures, school salaries, library facilities and the like had been studied.

We have initiated research using a factorial design to investigate the relationships of several of these variables to achievement.

[2] Jos. E. Avent, "Report of the Tennessee State Testing Program," Part I. Nashville: The State Department of Education, 1948.
[3] Jos. E. Avent, "Report of the Tennessee State Fifth-Grade Testing Program." Nashville: The State Department of Education, 1947.
[4] Bernie E. Carmichael, "A Study of Some Relationships of Pupil Achievement to Selected Factors in County Elementary Schools of Tennessee." Unpublished Master's Thesis, the University of Tennessee, Knoxville, Tennessee, 1949.
[5] W. Coleman, *Testing 200,000 Tennessee Pupils. Nashville*: Tennessee State Department of Education, 1950.
[6] W. Coleman, *Test Results for Curriculum Study.* Nashville: Tennessee Department of Education, 1951.
[7] R. L. Thorndike, "Community Factors Related to Intelligence and Achievement of School Children," in 1949 Official Report. Washington: American Educational Research Association, 1949, 265-271.

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Monetary Earnings and Allowances of High School Seniors

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DURING the general scarcity of labor which has prevailed in this country for more than a decade, it has been relatively easy for high school youth to secure employment—on either a part-time or full-time basis. Indeed it seems that during this time many upperclassmen of both sexes stopped attending school before graduation in order to hold good-paying jobs, although entrance into the armed forces and other less readily determinable causes have been involved in numerous cases of leaving school. In some instances the readiness with which students secure allowances from parents probably affects the likelihood that they will seek pay jobs while in school.

The present article includes data on the earnings and allowances of seniors in 26 small to medium-sized white public high schools in 7 southeastern states: North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Tennessee. The data were collected in May, 1952, and were supplied by the seniors on questionnaires which bore no marks of individual identification. The materials on earnings and allowances presented here constitute part of a larger study on the general interests and activities of high school youth.

Table 1 shows the distribution of earnings reported by 597 seniors according to sex and place of residence. Seniors who contributed information on other parts of the general study, but who did not report that they earned money during the year, are not included in the table.

The totals at the bottom of Table 1 show considerable variation in the numbers indicated for the different residence and sex categories. The 597 seniors who reported earnings constitute approximately 60 per cent of the total number who supplied usable information for some part of the larger study. The line "approx. % of study," at the bottom of the table, shows the approximate per cents for each of the four groups in the larger study. Thus the 247 town boys constitute roughly 73 per cent of the boys of this classification who reported in the larger study.

TABLE 1. Earnings Reported by High School Seniors, According to Place of Residence and Sex of Student Reporting

Amount Earned	Town		Farm	
	Boys	Girls	Boys	Girls
$0 - 50	31	64	13	25
51 - 100	22	28	7	9
101 - 150	13	37	8	3
151 - 200	28	27	7	4
201 - 250	19	9	6	1
251 - 300	22	9	11	0
301 - 350	15	8	2	4
351 - 400	19	8	8	0
401 - 450	6	5	1	2
451 - 500	14	6	2	3
501 - 550	6	8	2	0
551 - 600	7	2	2	1
601 - 650	5	0	0	0
651 - 700	0	0	1	1
701 - 750	1	0	1	1
751 - 800	1	1	0	1
801 - 850	2	1	0	0
851 - 900	8	0	0	0
901 - 950	3	0	0	0
951 - 1000	7	1	1	0
over 1000	6	0	3	0
Totals	247	220	75	55
Approx. % of Study	73	43	62	32

A substantially larger percentage of the boys who supplied usable data for the study reported monetary earnings than was true of girls. Two factors may be of primary importance in explaining this situation. (1) Since there are more men than women in the nation who are "gainfully employed," one would expect a period of labor shortage to include more job opportunities for boys than for girls—of the ages of high school seniors. An opposite reflection of the same principle is the listing of more male than female unemployed during a period of job scarcity. (2) Community and family mores are often such that, because of limited family resources for sending children through high school or because of socio-economic outlook in other respects, there is more inducement or pressure for boys than for girls to secure pay jobs.

A larger percentage of the town seniors than of the farm seniors reported cash earnings. This seems partly because the economic structure of the town is more on a cash basis than that of the farm —most jobs in town constitute hire by a "stranger" for pay, whereas many tasks that farm youth perform are looked upon as part of a

family enterprise for which no money is directly paid. To a large extent this holds for big or steady jobs as well as for little or temporary jobs. Moreover, in most towns there are more different kinds of jobs which high school seniors might hold, with less seasonal variation, than is generally true on farms. This may be especially important for girls.

In order to conserve space and also because no clear pattern of earnings with respect to age was found, no separate listings by age of seniors are tabulated here. When percentages for boys who reported earnings are calculated by age regardless of residence, the approximate percentages by age groups were 17 years or under, 74 per cent; 18 years, 71 per cent; and 19 years or over, 62 per cent. The corresponding percentages for girls are: 48 per cent, 46 per cent, and 48 per cent. It may be significant that as high a percentage of youth 17 years old or under as of older youth report earnings. Possibly older youth who have economic problems which induce them to get pay jobs have dropped out of school in many cases and are not included in the study.

The range in earnings reported is significant. Calculations from Table 1 show that 135 of the 247 town boys reported earnings which ranged from zero to $300.00, whereas some other town boys reported earnings more than three times as great. In the case of town girls, the earnings of more than half (129) of the 220 reporting did not exceed $150.00 each. The earnings of more than half of the farm girls (33) did not exceed $100.00 each, and the earnings of 41 of the 75 farm boys did not exceed $250.00 each. Fewer of the girls than of the boys, and fewer of the farm seniors than of the town seniors, reported earnings in the higher brackets. Initiative in securing jobs, skill in job performance, personal health, and academic load carried are probably also related to differences in the amounts which high school seniors earn.

Table 2 shows the number and distribution of seniors who reported that they received regular monetary allowances from their parents. The percentages at the bottom of the table, which were determined in the same manner as those included in Table 1, show that a much smaller percentage of seniors in the schools concerned reported regular allowances than reported earnings. In some instances earnings and allowances are probably related in the sense that a low regular allowance may stimulate effort to earn.

It is of interest that the percentages reporting regular allowances is the same for both sexes—when age groups are combined. This

TABLE 2. Money Allowance Reported by High School Seniors from Their Parents, by Place of Residence and Sex of Student

Allowance	TOWN		FARM	
	Boys	Girls	Boys	Girls
$50 or less	9	19	7	9
51 - 100	15	30	3	7
101 - 150	10	13	3	5
151 - 200	14	11	4	5
201 - 250	2	2	0	1
251 - 300	6	6	1	0
over 300	10	2	1	1
Totals	66	83	19	28
Approx. % of Study	20	20	16	16

holds for both town and farm seniors. Girls are concentrated somewhat more than boys in the lower allowance categories, i. e., in which the amount of the allowances does not exceed $150.00. This may be a reflection of custom whereby boys in many communities have greater economic responsibility in regard to dating than girls have. No consistent difference appears between age of senior and amount of allowance reported.

Table 2 shows that a smaller percentage of farm than of town seniors reported regular allowances. This fact should be considered along with the fact that a smaller per cent of farm than of town seniors reported cash earnings. Hence it appears that although farm seniors have fewer opportunities than town seniors to earn money through pay jobs, they are also less likely than town seniors to have regular allowances with which to satisfy current economic needs and desires. Unless farm parents respond more readily than town parents to "sporadic" requests for money, or enable their children to develop home projects which can be turned into cash to a greater extent than is possible for town parents, farm youth are likely to be handicapped and perhaps considered "tight" or "seedy" in regard to the educational and social aspects of high school life which are not paid for by the school from public funds.

Table 3 shows the extent to which the high school seniors in the present study were free to spend their allowance money or their earnings as they saw fit, without having to confer with parents about the use made of allowances or without having to give part of their earnings to their parents.

The table shows that from 81 to 90 per cent of the 672 students reporting (both sexes) were free to spend their allowances as they

TABLE 3. Extent to Which Seniors Must Confer with Parents on Expenditure of Allowance Money, or Must Give Parents Part of Their Earnings, by Sex and Residence of Pupil

Sex and Residence of Pupil		MUST CONFER ON SPENDING ALLOWANCE MONEY		MUST GIVE PARENTS PART OF EARNINGS	
		Number Reporting	% Who Need Not Confer	Number Reporting	% Who Give None to Parents
Boys:	Town.....	256	88	241	65
	Farm.....	81	85	77	78
	Total.....	337	87	318	68
Girls:	Town.....	267	90	224	77
	Farm.....	68	81	55	75
	Total.....	335	88	279	77

chose—without conferring about individual expenditures. There seemed to be no important sex difference among pupils in this respect. However among girls, nine per cent more of the farm than of the town students reported that they must confer with parents on the point indicated. This fact may reflect a somewhat more closely knit economic unit in the farm than in the town family.

From 65 to 78 per cent of the 597 seniors (both sexes) who reported on whether they gave part of their earnings to their parents stated that they gave none. More of the boys than of the girls gave parents part of their earnings—particularly the town boys. This finding does not support the rather general contention that boys of high school age have greater personal freedom and independence than girls. Incidentally two boys and three girls, not included in the table, reported that they gave all of their earnings to their parents.

In a society in which there seems to be a continuously growing attitude that every adult should earn his way in the world and should make an economic contribution, rather than live off the production of others as a privileged member of the group, experience in the free and responsible use of money should constitute a part of the education and development of every youth. The budgeting and use of allowances can be helpful in this respect, although the fruitfulness of the economic experience is greatly increased if the individual earns what he spends.

Whether the values of monetary responsibility for the maturing of personality are fostered by circumstances in which the earnings of youth are given to the parents will depend largely on relationships within the individual family. If a contributing youth helps

make important family decisions on ways in which his earnings are used, the situation is quite different from that in which he has no part in such decisions. However it would seem to be unusual circumstances which would justify a youth feeling that he should give *all* of his earnings to his parents.

Educators might well give more attention than they have so far to ways in which high school students can hold part-time pay jobs while they continue in school. The importance of work experience and of related economic responsibility in the maturing of high school youth, under school-industry relationships which insure educational and maturing values for youth without the danger of exploitation of youth by industry, may become clearer to some educators if the nation should experience a lowered level of general employment with a scarcity of jobs for youth of high school age. If the need became clearer under such conditions, however, it would also become more difficult to meet.

Earth Science in the High School

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SCIENCE concepts (principles) of the earth are being given an increasing emphasis in the high school classroom and in secondary school education. The purpose of science in the high school during the last several years has changed from an emphasis on preparation for college and training for the specialist toward meeting an ever-increasing demand to prepare youth for living. Likewise, there has occurred a shift in the high school population from a small selective group to a much larger group that includes most of the secondary school age group. A more diversified pupil population has brought to the high school an increase in the differences of pupil abilities and needs. This condition relative to individual differences among pupils has posed a major problem to instruction.

These conditions pose an urgent and immediate need for curriculum reconstruction in the secondary school offerings. At present, an immediate need for curriculum reconstruction rests upon the secondary school science offerings. The aim in general education science is to relate the basic sciences to one another and to their social implications. The use of earth science concepts in the high school science program of general education has helped relate the sciences to one another and to portray many significant social implications of science.

The general education science curriculum in the high school should furnish at least a token of those learning experiences considered to be needed by all individuals in our form of society. It is assumed that these learning experiences should include and relate to nature. They should include selected knowledges (facts), concepts (principles), attitudes, and appreciations which are drawn from all areas of our culture. It is assumed that the general education science curriculum in the high school should possess planned continuity between science units in a science course and between science courses contributing to the curriculum. Questions must be raised whether the general education curriculum can undergo expansion beyond its present grasp on student time and whether all areas in the high school which contribute to this general education curriculum should be held within their limits of required credit.

The writer believes that there is a sequence of learning experiences existant in the areas of the Earth Sciences which can employ ideas from all the other sciences. Earth Sciences include the following segments of our culture: astronomy, geography (weather and climate), geology, and the scientific aspects of conservation. Science courses taught with an awareness of the pupils' need for learning experiences related to nature possess much of the general education values which the science curriculum should contribute.

There is a need for studies in curriculum research designed for the general education science curriculum of the high school. They should deal with selected and related principles from the four areas just indicated. They should have organized data and interpretations arranged according to the relationships exhibited in natural phenomena. The units should compose a study which could tie into a science sequence which other areas such as botany, zoology, chemistry, and physics might help complete for the general education science curriculum of the high school.

The main general education quality of this study as planned is the manner with which the selected learning experiences from the four fields of astronomy, geography (weather and climate), geology, and the scientific aspects of conservation may be taught as a chain of related learning experiences. To insure the preserving of this chain, a list of basic general education science principles which could be used in the high school science requirements for all students is suggested:

1. The universality of scientific laws.
2. The composite and interdependent character of man's past and immediate environment.
3. The dependence of members of the plant kingdom upon the physical, chemical, and biological nature of their environment.
4. The interdependence among the members of the plant and animal kingdoms.
5. Those earth conditions which lead to the natural production of food and vegetable fiber for man.
6. The needs of man for mineral materials and the effects of their world distribution upon human behavior.
7. The effects of the world distribution of human population, and man's resultant material and energy needs upon his behavior, health, and social life.
8. The pattern of influences existing among water, minerals, heat energy, and organic foods in the support of plants, animals, and man.
9. The effects of scientific discoveries upon human affairs.
10. The reliance of an intelligent citizenship upon an ability to make scientific value-judgments in modern society.
11. The ability to participate in scientific husbandry of the natural process of the earth toward greater human welfare.

Earth Science principles can be defined as the abstractions formed from the connections of related responses. The understanding of principles originates in experiences of such a nature which will produce ideas. These ideas are then associated in such a fashion as to produce larger concepts. It is expected that the school will contribute to this end if its activities are of such a nature to produce experiences from which ideas will be derived and to assist in the associating of these ideas to produce the principles and generalizations desirable for that level of learning.

In order to illustrate what is meant by learning experiences which lead to an association of ideas and hence to principles, the following example is given. Small children observe a stream carrying away earth, which illustrates how certain principles concerning the rate at which valleys are cut and hills are formed. As the child grows, his observations, based on the same experiences with small streams, became more discerning and lead to a more complete understanding of the principle that the earth is very old. Since these principles may be stated as objectives of science teaching, they should ocupy an important place in a program of science for general education. Since the aim of science for general education is life enrichment, children should be introduced to such big ideas, early in their educational development.

The place which the teaching of science principles should occupy in the science program is that they should bring out general truths clearly and forcibly. We should emphasize science principles because they are relatively few in number and because, since they are general, we often meet situations in which they apply. Each application which the student makes of a principle gives it more significance to him and, when the facts become numerous, the principle is still significant because it is a functional law.

Educational leaders in the secondary schools during the last twenty years have studied the problem of the function of science in the general education program for all secondary school pupils. Yearbooks and committee reports of various national organizations have considered many aspects of the problem. At least forty-six independent research studies have dealt with the same curriculum problem. In 1941 Wise[1] attempted to determine the physical science principles for general education, and Martin[2] attempted to

[1] Harold E. Wise, "A Determination of the Relative Importance of Principles of Physical Science for General Education." Unpublished Doctor's dissertation, University of Michigan, 1941. 767 pp.

[2] W. E. Martin, "A Determination of the Principles of the Biological Sciences of Importance for General Education," *Science Education* 29: 101-5, 152-63, 1945.

determine the biological principles of importance in general science. Since 1945 there has been an increasing demand for better understanding of the scientific aspects of the entire earth. This has created a demand during the last eight years for an increased emphasis upon the earth sciences in the science program of general education in the secondary school. As a result of this growing demand, the author[3] began a study in 1952 which attempted to determine the desirable principles from the earth sciences for the science program of general education in the secondary school.

In this study, the assistance of fifty teachers was solicited as a means of obtaining titles of source materials other than textbooks useful in teaching the earth sciences in the general education curriculum of the secondary school. In addition, publishing companies furnished titles of textbooks available for the same curriculum. In all, 185 different titles of published source materials other than textbooks were secured and thirty titles of textbooks were secured from as many publishing companies. From all of these titles, twelve titles of reference books, bulletins, and pamphlets and thirteen titles of textbooks were selected. These source materials were analyzed in order to secure statements of earth science principles. This analysis resulted in the compilation of a list of 332 different statements of tentative earth science principles. These statements were refined and edited by a jury of science teachers to determine their scientific truth and whether they were statements of a principle. This refined list of earth science principles was then submitted to a jury of leaders in science education to determine their desirability for use in a science program of general education in the secondary school. From the list of 332 statements of earth science principles, 296 were given relative importance ratings indicating them as desirable for use in a science program of general education in the secondary school. From among these 296 principles of the earth sciences, about one-third were related primarily to the area of geology; one-fourth, to physical geography (weather and climate); one-fourth, to astronomy; and one-sixth, to the scientific aspects of conservation.

Each of the five members of the jury of evaluators rated 34 of the 332 earth science principles as highly desirable for use in the science program of general education in the secondary school curriculum. For purposes of example, the statement of an earth

[3] Loren T. Caldwell, "A Determination of Earth Science Principles Desirable for Inclusion in the Science Program of General Education in the Secondary School." Doctor's Thesis, School of Education, Indiana University, Bloomington, Indiana, 1953. To secure a brief of this study, write to Dr. Loren T. Caldwell, Acting Head, Earth Science Department, Northern Illinois State Teachers College, DeKalb, Illinois.

science principle from each of the four areas of astronomy, physical geography (including weather and climate), geology, and the scientific aspects of conservation are given here. Each of these statements received a rating of highly desirable by each of the members of the jury of evaluators.

Statement from the area of geology: "Weathered rock materials are moved toward the ocean in states of suspension and solution by the action of ice, wind, rivers, and shore currents." This principle gives the teacher an opportunity to gather materials and to present facts and concepts related to the entire program of past and present changes on continents produced by transportational agents of erosion and deposition.

Statement from the area of physical geography (including weather and climate): "Weather phenomena result from temperature and humidity differences which produce winds, clouds, and precipitation types." This earth science principle gives the teacher the opportunity to gather those materials and to present those ideas which relate to the operation of physical laws in the atmosphere and the day by day weather phenomena.

Statement from the area of astronomy: "Our energy all comes directly or indirectly from the sun in the form of heat energy, which produces winds, ocean currents, food, plant and animal tissue, and fuel minerals." This earth science principle permits the teacher to gather data and present concepts which establish the inter-relationships which exist between our nearest self-luminous astronomical neighbor and our own earth. Thereby, students can have a basis for seeing the energy relationships on a broader scale as they exist in regard to other of the astronomical bodies.

Statement from the area of the scientific aspects of conservation: "Eroding soils lose their mineral, water, and humus content which results in an ever-increasing soil susceptibility to erosion." This earth science principle gives the teacher an opportunity to furnish materials and information which can lead to the concept that all of the major constituents of a good soil have their maintenance dependent upon the presence of the other constituents. This principle of inter-relationships in the realm of the inanimate can be presented in this case to the secondary school student. It may prove to be the more convincing since there is such frequent opportunity in nature to illustrate the principle.

One member of the jury of evaluation included a significant observation with his relative importance ratings for several of the

332 earth science principles. He pointed out that, in his judgment, 62 of the 332 earth science principles exceeded the criteria employed for the selection of science principles. This observation by one of the five jury members was indicated by the notation that these 62 statements were worded to include the human responses and social implications as well as the scientific principle to which they were related. This jury member concluded that such statements of principles might be recognized as earth science principles rather than basic science principles. For example, a statement of an earth science principle which includes a scientific principle and a social implication is as follows: "Topsoil supports plant growth and insures the continued support of animal life by plants, which facts make its conservation essential."

This increased emphasis upon the earth should help to bring the study of basic science principles to their natural applications and to their world-dominating social influences. The social implications which earth science principles focus on problems of health, nutrition, and conservation should greatly increase the social significance of their study for the secondary school pupil. A world awareness of the occurrence, use, and distribution of physical and living commodities as related to the scientific aspects of our natural environments should help make citizenship responsibilities more apparent to all secondary school pupils. Consequently, many educators believe that earth science concepts secured from earth science principles will function as a bridge of learning experiences between the basic sciences and the social studies. Such a function could strengthen the citizenship-building aspects of the general education curriculum in the secondary school.

Since valid research studies and many national organs of secondary school principals and superintendents have indicated the desirability of earth science principles in the science program of general education in the secondary school, it becomes the task of the science teacher to accomplish the curricular change. This change can best be promoted by the science teacher if the change is initiated through the secondary school administrator, and if the science teacher is prepared to meet this new responsibility.

In Other Periodicals

The brief papers that twenty-eight teachers in elementary and secondary schools handed in to J. D. Koerner, instructor in an extension course in American Literature at Kansas State College, caused him to suffer "misgiving, disbelief, shock, horror, wrath, and apathy—in something like that order. For in the broad sense of the word, these men and women were downright, hopelessly illiterate." Many discouraging examples of misspellings, faulty grammar, or inept style are included in his article in the November *Harpers' Magazine*, "Can Our Teachers Read and Write?" Most of the teachers had received some college training, but few had finished college. Mr. Koerner suspects that his experience is not an isolated one, but instead that "it is duplicated many times each year around the country."

"Give Them All a High School Diploma," suggests J. D. Thompson in the October *Bulletin* of The National Association of Secondary School Principals. Mr. Thompson, principal of the Coosa County Training School, Cottage Grove, Alabama, reports on the beginnings of a five-year experiment in his school in which all students will be graduated provided their attendance and conduct are satisfactory. Academic requirements are completely eliminated so far as promotion and graduation are concerned—although appropriate grades are still given and high quality work is emphasized. Some of the purposes of the experiment are to de-emphasize the importance of the diploma, to allow each student to learn at his own rate, to make it possible for students to work and study without the anxiety of graduating, to adjust the curriculum more to the needs and abilities of students, and to place more emphasis on citizenship, and moral and spiritual values.

Twelve of the most successful techniques used by the teachers of Seattle's Roosevelt High School to combat "Inattention" are reported by Jack Greaves in the November *Clearing House*. Some of the procedures are these: having a friendly, private talk to try to find out the reasons for the behavior and to relieve some of the antagonisms; keeping a behavior record card with the understanding that parents or counselor would be consulted when a given space is filled; holding class discussions on classroom courtesy; stopping talking when a pupil begins to chat.

It will come as no surprise that "Teaching Is Hard Work" (November *Atlantic*) but most teachers will enjoy and appreciate the comments by Sarah Caldwell, former president of The N.E.A. The article takes the form of a letter to a person about to begin her first day of teaching. Mrs. Caldwell blends personal experiences, historical developments in education, changing philosophies, and current problems in a realistic but encouraging way.

Educators who are weary of the wave of criticisms against the public schools will find both comfort and ammunition from P. E. Elicker's article, "How Good Are Our Schools?" in the *November* issue of The *Bulletin* of The National Association of Secondary School Principals. His statement that the average youth today receives a better education that the youth a generation or two ago is supported by a series of studies. Two examples follow.

On the reading test given in grades three through eight in Lincoln, Nebraska, in 1921 and repeated to a comparable Lincoln group in 1947, the 1947 group did better at each grade level than its 1921 counterpart. The 1947 fifth-grade group did slightly better than the 1921 eighth-grade group.

A comparison of the scores made on the achievement tests of the College Board examinations by graduates of public schools and graduates of independent schools for two years, March 1952 and March 1953, showed the public school graduates excelled in seven of the eleven subject tests in 1952 and in eight fields in 1953—in spite of the fact that the two groups were about equal in intelligence.

A brief overview of "Changing Traditions in Physical Education" is given by Warren R. Johnson in the October issue of *Education* (Physical Education number). Pointing out that in some cases schools are facing up to the issue of whether their athletic programs are in the entertainment business or are concerned with the business of education, Mr. Johnson states, "The popularity of varsity type competition has driven it downwards through the grades and outwards into out-of-school leagues. We are not sure whether its expansion downward has been due mainly to its appeal to youngsters or to the zeal of its adult promoters; nor are we sure whether, even at best, it is appropriate, physiologically or psychologically, to the children involved."

Audio-Visual Materials and Techniques

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INSTRUCTIONAL FILM RESEARCH

A recent report on Instructional Film Research from 1918-1950 was released by the Pennsylvania State College Instructional Film Research Program.

This report was prepared by Charles F. Hoban, Jr., and Edward B. Van Omer, and it was sponsored jointly by the Department of the Army and the Department of the Navy.

Over two hundred experimental and survey studies have been made in the past thirty-odd years on the educational influences and effectiveness of motion pictures. With the rapid growth of television, research data dealing with the projected picture and voice may have an increased practical, as well as theoretical, importance. From an educational point of view, it is important to know what kind of research has been conducted on the effectiveness of the projected picture and sound in promoting learning, what valid conclusions can be derived from the mass of accumulated research data, and which of the prevalent beliefs about the effectiveness of motion pictures are supported by controlled observations and empirical data.

The purpose of this report is to present such a summary of the film research published prior to June 1, 1950. The report is largely, although not exclusively, confined to experimental studies which report the observed effects of motion pictures on human behavior.

This report is the most comprehensive collection of data on instructional films available to educators today. It is skillfully prepared and presents interesting psychological phenomena involved in the use of instructional films. It will provide interesting documentary material for the classroom teacher and is a valuable reference for the administrator concerned with expenditure of public funds for instructional films.

A copy of this report may be secured from: Office of Technical Services, U. S. Department of Commerce, $2.00.